ABSTRACT OF THE DISCLOSURE

A detector for use in imaging applications includes at least one detector array, an array of photodetectors, and a continuous light guide disposed between the detectors and the photodetectors. The light guide is continuous over the entire area of the photodetectors and detectors. The thickness of the light guide is optimized based on the shape of the photodetector array. Each detector array includes a plurality of scintillator elements disposed in an M x N array, where "M" and "N" are independently selectable and are each at least one. A mechanism for maintaining the relative positions of the individual scintillator elements with respect to each other is provided. The retainer is further provided to enhance the separation between the individual detector arrays to define distinct boundaries between the position profiles of the scintillator arrays.